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Does insurance market impact the economic growth? Evidence from Albania

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Abstract

Insurance plays a significant role in the economy development all over the world, being an important source of capital accumulation and investment. This paper studies the long run dynamic relations between economic growth and the insurance market in Albania. Using secondary quarterly data from 2005 to 2018, we have taken into consideration three main indicators of the insurance market: (i) life and non-life insurance volume; (ii) life and non-life insurance density and (iii) life and non-life insurance penetration index. The data analysis is carried through Johansen's vector error-correction model. The findings of the study revealed no long run relation between economic growth and insurance market, when the employed indicators are the premium volume and the penetration index. On the other hand, when the insurance market is measured by the density index, we found a long run negative relation between growth and life insurance activity and a long run positive relationship between growth and non-life insurance activity.

JEL classification: G22, F43

Keywords: Insurance market, Economic growth, Albania

1. Introduction

Albania is a country that has experienced a long transition, after the beginning of the reforms in 1990. Insurance market has not been a priority of the economic reforms in the first decade. According to the statistics of the Insurance Commission (Albanian Financial Supervisory Authority at the present), the premium per capita in 1999 was only USD 4.2, while in 2018 it has been increased more than tenfold. The insurance market in Albania is significantly developed in the second decade of transition period. The number of insurance companies has been increased, the foreign capital entered, the legislation was significantly improved etc. The insurance market in Albania has always been dominated by non-life insurance products. In 2019, the life insurance activity shared about 7% of total insurance activity. The structure of the insurance market in Albania has been changed from the state monopoly (until 1999) to oligopoly (up to 2002) and then to monopolistic competition (during the last decade) according to

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Sharku & Shehu (2016). However, the competition degree varies within the classes and activities of the insurance market. Among life and non-life insurance, the life insurance activity is more concentrated than the non-life insurance market, due to the small number of insurance companies operating in the life insurance market.

Many academics and practitioners in Albania have explored the factors that influence the economic development in Albania, such as foreign direct investment, remittances, banking sector, monetary policy, fiscal policy etc. But very few of them have included the insurance activity as a potential variable of economic development. The late development of the insurance sector in Albania, may be one of the reasons that it is not considered in their studies. However, the international literature suggests that a relationship between economic development and insurance activity may exist even in developing countries like Albania.

The aim of this article is to explore the relationship between insurance activity and economic growth, considering both the segments: life and non-life insurance and economic development. The literature review regarding this relationship is summarized in the first section of the article. The second section presents the methodology and the data base used in the study and the third section discusses the findings. The final section contains some conclusions regarding the insurance market in Albania.

2. Literature Review

The relationship between economic growth and insurance industry is subject of many authors, studying the data in different countries and in different economic development periods. In this study, we classify the authors and their findings according the to the economic development of the countries taken in consideration, starting with Ward & Zubruegg (2000), who introduced a study that represents a great contribution to examine the dynamic relationship between economic growth and increase in the insurance industry for nine OECD countries. They used a unique set of annual data for real GDP and total real premiums, from 1961 to 1996, for each country. The Granger causality test suggests that in some OECD countries, the insurance industry causes economic growth, but in other countries the reverse effect. Only for the UK and USA the authors revealed an insignificant relationship. Kugler & Ofogi (2005) studied the UK data for the period 1966-2003. The models they used to investigate the long-run relationship between insurance market and economic growth, were based on disaggregated data. They used Johansen's cointegration test and Granger causality, and their empirical analysis revealed a positive long-run relationship between GDP and the size of the insurance sector, which is characterized as bidirectional. It is important to mention Kugler & Ofogi (2005) realized that Ward & Zubruegg (2000) concluded insignificant results, because they used aggregate data (life and non-life premiums).

Differently from previous authors, Adams et al. (2009), examined the dynamic relation between commercial bank activity, insurance and economic growth only in one country, in Sweden for the period 1830 to 1998, using time-series data and performing tests for Granger causality. The study concluded that insurance has Granger-caused economic growth and bank lending. Furthermore, the insurance sector has a positive effect on economic growth only in the high economic development periods.

Later on, Ege & Bahadir (2011) explored the role of insurance in changing economic growth using data of twenty-nine countries from 1999 to 2008 (Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italia, Japan, Turkey, South Korea, Luxemburg, Mexico, Holland, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, England and USA). The panel data analysis revealed a positive relationship between insurance and economic growth.

Chang et al. (2014) applied bootstrapping Granger causality model over a period of 1979–2006, for 10 OECD to examine the relationship between insurance and economic growth. Their findings were not uniform for all the countries included in the study. While Pradhan at al. (2017) explored the causal relationship between insurance market penetration and economic growth per capita in 19 Eurozone countries for the period 1980–2014. Employing Granger causality, the results were mostly non-uniform across the Eurozone countries during this selected period.

Despite the low level of development, there are a lot of authors that have studied the relationship between economic growth and the insurance market in developing countries. Verma & Bala (2013) based on the Ordinary Least Square regression model, examined the relationship between the life insurance and economic growth in India for the time period 1990 to 2011. The findings of the study concluded that life insurance significantly influences the economic growth of India. These findings are in line with Ghosh (2013) and Din et al. (2017) for India and Chau et al. (2013) for Malasyia.

Olayungbo & Akinlo (2016) and Alhassan, A.L. (2016) studied the relationship between insurance and economic growth in African countries (five out of eight countries were the same in both studies). Olayungbo & Akinlo (2016) focused their research in eight African countries for the period of 1970–2013. The study showed positive relationships for Egypt, while short-run negative and long-run positive effects were found for Kenya, Mauritius, and South Africa. On the contrary, negative effects were found for Algeria, Nigeria, Tunisia, and Zimbabwe. On the other hand, Alhassan (2016), revealed a long-run relationship between insurance market activities and economic growth for Kenya, Mauritius, Morocco, Nigeria and South Africa. Omoke (2011) studied the impact of the insurance market in Nigeria on economic growth for a period between 1970 and 2008. Contrary to the findings of Olayungbo & Akinlo (2016) and Alhassan (2016), the insurance sector did not reveal any positive and significant impact on economic growth in Nigeria within the period of study. Akinlo & Apanisile (2014), studied the relationship between insurance and economic growth in sub-Saharan Africa over the period 1986-2011. The authors found that insurance has a positive and significant impact on economic growth in sub-Saharan Africa.

The effect of the insurance sector in the economic development of Turkey has been examined by Yildirim (2015). He employed the Granger Causality Test and VAR Model using trimester data between 2006-2014 years. He found a positive relationship between the economic development and insurance sector.

Cristea et al. (2014) aimed to establish the correlation between insurance and economic growth in Romania, for the period 1997-2012, based on statistical methods concerning the analysis between the GDP and insurance indicator, taking into consideration insurance penetration and insurance density. As a conclusion, they found out the life insurance is affecting more significantly the GDP per capita, compared with the non-life insurance. The impact of insurance market in economic growth in the ex-Yugoslavia region is tested by Njegomir & Stojić (2010). They used the country-specific fixed effects models for panel data for the period 2004-2008. The analysis revealed a positive effect of insurance on economic growth. Kjosevski (2011) studied the relationship of insurance and economic growth for Macedonia, for the period 1995–

2010, using the multiple regression models. With the scope to solve the model it was used the technique of least squares, followed by analysis of variability in order to identify the effects of each variable. He used three different insurance variables - life insurance, non-life insurance and total insurance penetration, and he concluded that the total insurance industry and non-life insurance have a positive and significant effect on economic growth of Macedonia. Life insurance affects the economic growth of Macedonia significantly, but in a negative way.

Few researchers have studied the relation between the insurance market and economic development in Albania. Madani and Bazini (2017) have studied how the Albanian insurance market is influenced by the economic growth and other factors such as inflation, education of population, population growth, government policies, private investment, etc. Using insurance penetration indicators from 1999 to 2013, they found that economic growth negatively affects the tendency of Albanian citizens on the request of products of the life insurance industry. Kalaja at al. (2017) have examined the impact of the insurance market on economic development in Albania. Using insurance density indicators, for the period 2006-2015, the authors have found evidence of a positive effect of the development of the life and non-life insurance markets on economic growth and that economic growth is negatively affected by savings and the inflation rate. On the other hand, Zyka & Myftaraj (2014) in their study, found an insignificant role of the insurance market in Albanian economy.

The composition of the insurance market influences the impact that each insurance segment may have in economic development. The insurance activity that is the largest part of the market may significantly drive the result. Arena (2008), verifying if there is a causal relationship between insurance market activity and economic growth for 55 countries, during the period 1976 – 2004, concluded that both life and non-life insurance have positive and significant causal effects on economic growth. For life insurance, high-income countries drive the results, and for non-life insurance, both high-income and developing countries drive the result. Haiss & Sümegi (2008), in order to study the relationship between insurance and economic growth, applied a panel data analysis over the period 1992-2005, for 29 countries of OECD. They found out that For the New EU Member States from Central and Eastern Europe, the economic growth is impacted more from liability insurance, compared with the other countries that life insurance played a more important role. It is explained by the fact that the motor third party liability constitutes the largest part of the total insurance market in Central and Eastern Europe countries.

The relation of the insurance market, especially the life insurance one, with economic development depends on the development and the characteristics of the financial system of a specific country. Ouedraogo et al. (2016), tested the relation between the development of the life insurance sector and economic growth, for a sample of 86 developing countries over the period 1996-2011. He concluded that the marginal positive impact of the development of life insurance decreases with the levels of deposit interest rate, bank credit and stock market value traded, while the effect is greater in countries with high-quality institutions. Webb at al. (2002) used a cross section analysis to study the positive effect of the bank and insurance sector on economic growth, in 55 developing and developed countries. He discovered that the effect of bank and insurance markets together is stronger than when measured independently from each other. Din at al. (2017) have tested the relationship between insurance and economic growth for six (developed, emerging and developing) countries over the period of 1980 to 2015. The authors concluded a significant and positive relationship between non-life insurance and economic growth in the short-run for the all the countries taken in consideration, while the relationship between life insurance and economic growth is not uniform among the countries considered in the study.

It is difficult to come to a conclusion regarding the findings of the studies which explore the relationship between insurance market and economic growth. Several authors have applied different statistical tests and models as well as different indicators for measuring economic growth and the insurance market. This may be one of the reasons that the research results are non-uniform even among countries at the same level of development.

3. Methodology and data selection

The focus of this study is to examine the long run dynamic relations between economic growth and the insurance market in Albania, using Johansen's vector error-correction model. Although the Engle & Granger (1987) procedure can be implemented, it is less efficient when using three or more variables. In testing three or more variables, more than one cointegration vector may be expected, and as Enders (2014) explains, the method has no systematic procedure for the estimation of multiple cointegrating vectors.

We first perform the augmented Dickey – Fuller (ADF) to test for stationarity and unit roots for variables in both level and first difference followed by Phillips-Perron test to check for major alterations. In order to test for cointegration and estimate the VECM, all variables must be integrated of order one I(1), hence being stationary at first difference. After testing for stationarity, we perform a test to determine the lag length structure, relying on multiple criteria mainly including Akaike Information Criterion (AIC), Schwarz Information Criterion (SC) and Hannan-Quinn Information Criterion (HQ).

Therefore, we perform the Johansen (1988) cointegration test to determine the existence of one or more cointegration vectors, since all the hypotheses in consideration consist of three variables. The cointegration test will therefore determine the rank of $\lambda=\alpha\beta'$. Having determined the order of cointegration, we estimate a VECM and examine the cointegrating vector and the speed of adjustments of the parameters. Assuming there are multiple cointegrating vectors, we will select one cointegrating vector, or the eigenvector based on the largest eigenvalue. It is important to note that if there are more than one cointegration relationships in a three-variable system, there exist one cointegrating vector for each subset (Enders, 2014). At last, we interpret the relevant cointegrating vector and the speed of adjustment coefficient.

The variables included in this study are Growth, LLI, LNI, LID, NID, LIPI, and NIPI. The Growth variable retrieved from the INSTAT (National Institute of Statistics of Albania) national accounts time series, while life and non-life insurance volumes were accessed at AFSA (Albanian Financial Supervisory Authority). As the scope of the article is to study the long run relationship between the insurance market and economic growth, we use take into consideration three main indicator of the insurance market:

(i) life and non-life insurance volume;
(ii) life and non-life insurance density; and
(iii) life and non-life insurance penetration index.

The life and non-life insurance volumes are transformed to generate the variables of interest. Table 1 provides the list of variables and their definitions.

Table 1:Definitions of variables

Variable Name	Definition of variables
Growth	Economic growth (in percentage)
LLI	Natural logarithm of volume of life insurance premium
LNI	Natural logarithm of volume non-life insurance premium
LIDR	Life insurance density rate – life insurance premium volume per capita (in Euro per capita)
NIDR	Non-life insurance density rate – non-life insurance premium volume per capita (in Euro per capita)
LIPR	Life insurance penetration rate – life insurance premium volume to GDP ratio (in percentage)
NIPR	Non-life insurance penetration rate – non-life insurance premium volume to GDP ratio (in percentage)

The volumes are at first converted into natural logarithms, to generate LLI and LNI. The life and non-life insurance density is then calculated as the volume per capita (LID and NID) whereas the life and non-life insurance penetration rate is calculated as the ratio of the premium volume to the gross domestic product (also retrieved from INSTAT) at a given time (LIPR and NIPR). Table 2 provides the summary statistics for the variables in their final form.

Table 2: Descriptive statistics of variables

Variable Name	Mean	Std Dev	Min	Max
Growth	5.944	3.911	-1.811	13.521
LLI	14.097	0.517	12.370	14.782
LNI	16.513	0.418	15.659	17.288
LIDR	5.552	2.423	0.015	11.195
NIDR	0.506	0.204	0.901	0.078
LIPR	0.061	0.018	0.094	0.374
NIPR	0.674	0.189	1.117	2.094

We focus on the period of time from the first quarter of 2005 up until the second quarter of 2018. Considering the nature of the study and the nature of the insurance market in Albania, we included quarterly data, as annual data would mean having few observations available for an efficient estimation. As described in the section II, the market insurance in Albania has been obviously developed only after 2005, due to the improvement of insurance legal framework, market liberalization and reorganization of the insurance market structures.

4. Results

4.1. Unit root test – Testing the stationarity

Initially, we test the stationarity of the variables using Augmented Dickey Fuller unit root test, as cointegration analysis requires variables to be integrated of order one. Table 3 reports the results of the ADF unit root test for the variables included in the study, for both levels and the first differences. The nature of the data requires to examine the stationary including the deterministic trend beside only the intercept. The ADF test shows that the variables are non-stationary at their levels but become stationary at their first difference.

In addition, we check for stationarity using Phillips-Perron unit root test. As the test statistics of the ADF test values show differences when checking for deterministic trend, we once again take account of the trend together with the intercept. Except for LIPR (at a certain level) the PP test supports the results of the ADF test, while in this case there are larger differences when taking account of the trend. Considering both test we conclude that the variables are I(1) and can be further used in the cointegration analysis.

Table 3: Augmented Dickey Fuller test results for unit roots

	Level		Difference	
	Intercept	**Trend and Intercept**	**Intercept**	**Trend and Intercept**
Growth	-1.353	-1.615	-6.086**	-6.051**
LLI	-1.070	-2.096	-8.775**	-8.713**
LNI	0.791	-0.735	-8.562**	-8.690**
LIDR	-1.105	-2.108	-8.772**	-8.717**
NIDR	0.722	-0.799	-8.604**	-8.707**
LIPR	-2.036	-1.553	-8.032**	-8.211**
NIPR	-0.312	-1.586	-9.033**	-8.939**

*** p<0.01, * p<0.05*

Table 4: Phillips - Perron test results for unit roots

	Level		Difference	
	Intercept	**Trend and Intercept**	**Intercept**	**Trend and Intercept**
Growth	-2.839	-3.142	-8.969**	-8.879**
LLI	-2.598	-3.177	-9.562**	-9.844**
LNI	-0.923	-2.075	-11.104**	-12.051**
LIDR	-2.388	-3.418	-16.230**	-18.760**
NIDR	-0.522	-3.120	-13.271**	-14.233**
LIPR	-2.596	-4.699*	-19.371**	-22.139**
NIPR	-2.169	-3.244	-14.646**	-14.442**

*** $p<0.01$, * $p<0.05$*

4.2. Estimation and Results

In studying the long run dynamic relations between economic growth and the insurance market in Albania, we examine the relation between economic growth and three main indicators of the insurance market.

First, we study the long-term relation between economic growth and the premium volume of the insurance market, meaning the life and non – life insurance premium volume.

Secondly, we focus on another dimension, the relation of growth and penetration rate of the insurance market (both for life and non-life insurance), indicating how the level of development of the insurance sector in Albania is related to economic growth.

Thirdly, we examine the density of the market, therefore the life and non-life insurance density long term relation with economic growth.

Based on the non-uniform findings of literature review, it is difficult to anticipate if there exists a relationship between insurance market and economic growth. However, as the insurance market in Albania is mostly oriented toward non-life insurance activity, we expect that the non-life insurance segment is more positively related to economic growth than the life insurance segment.

Growth and insurance volume

After the unit root test, we perform the pre-estimation lag order selection, to determine the optimal lag for the first model, which includes Growth, LLI and LNI. Selecting the length of the lags, surely is a delicate part of the time series analysis, since further estimations are based exactly on it. As previously explained, there exist several criteria to define this matter, but nevertheless there is no one decisive criteria. In this case, we base our decision on multiple criteria.

When running the pre-estimation lag order selection for Growth LLI and LNO we receive the results as shown in Table 5. According to most of the criterions determining the lag order we should include 4 lags in the model, except the Akaike Information Criterion (AIC)which determines that the optimal lag order is 7. As we base our decision on multiple criteria, which most suggest the use of 4 lags, we will consequently use this lag structure for further estimations.

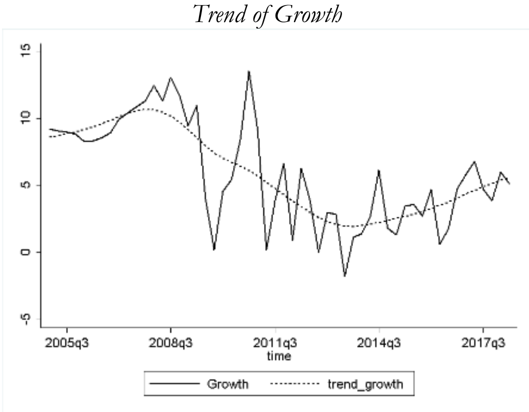
Table 5: Pre-estimation lag order selection statistics

Lag	LR	FPE	AIC	SC	HQ
4	38.581*	0.0033*	2.756	4.291*	3.333*
7	15.957	0.0034	2.613*	5.211	3.591

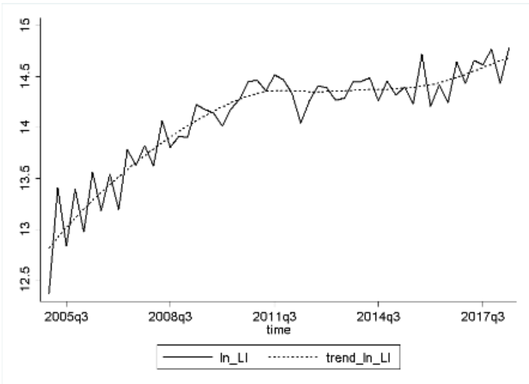
On the other hand, when performing the Johansen cointegration test we should be able to choose if to include the deterministic trend of the variables. When testing for unit root, the results showed at least some minor differences when including the trend. Figure 1 shows the sequence of Growth, LLI and LNI including the deterministic trend line during the selected period of time. From the graphs it can be perceived that Growth has initially a downward trend, but immediately followed by a slightly shorter upward trend, while LLI and LNI have a clear and continuous upward trend. Considering this, we will include the trend when performing the cointegration test.

Figure 1: Trend of variables

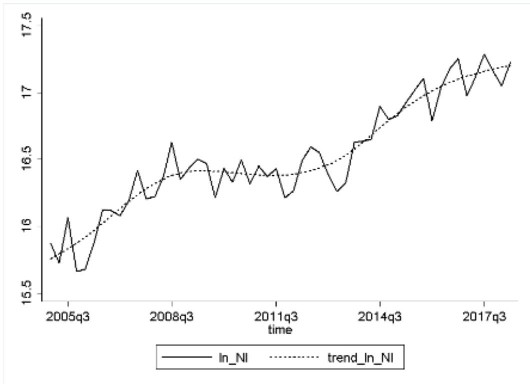
Trend of Growth



Trend of LLI



Trend of LNI



The Johansen (1988) cointegration tests the number of cointegration relations in a vector-autoregressive representation, which allows synchronised testing for the existence of cointegrating relations and defining the rank. As we included three variables in the first model, there are three possible cointegrating relations. Table 6 represents the results of the Johansen tests, based either in the Trace Statistic or the Maximum – Eigen Statistic. Considering both statistics of the Johansen cointegration test we conclude that there is no cointegration vector between Growth, LLI and LNI. Therefore, when considering the insurance market in Albania, there is no long run relation between economic growth and the volume of life and non-life insurance.

Table 6: Johansen cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic		p-value	Max-Eigen Statistic	p-value
None	0.319	36.197		0.199	18.817	0.318
At most 1	0.163	17.380		0.387	8.743	0.751
At most 2	0.162	8.637		0.204	8.637	0.204

Although the insurance market progress during the last decade is obvious, it still remains almost insignificant in respect to the other sector of economy. In 2017, the premiums of the insurance market in Albania shared about 0,02 percent of the GDP. Due to such a small part, it can hardly have a considerable impact on economic development.

Growth and penetration rate

Secondly, we analyse the possibility of a cointegrating relation between economic growth and the insurance market penetration rate, considering both life and non-life insurance penetration rate. Again, we perform the pre-estimation lag order selection test including Growth, LIPR and NIPR. The selected criterions suggest three possible lag structures. SC statistics suggest the use of one lag while AIC statistic suggests the use of 7 lags, but most criterions (LR, FPE and HQ) suggest the use of 4 lags. Basing our decision on multiple criteria, most of the criterions suggest 4 lags, which consequently will be the lag structure for further estimations.

Table 7: Pre-estimation lag order selection statistics

Lag	LR	FPE	AIC	SC	HQ
1	79.591	$1.78e^{-05}$	-2.421	-1.949*	-2.243
4	33.337*	$7.48e^{-06}$*	-3.333	-1.798	-2.756*
7	15.651	$8.51e^{-06}$	-3.398*	-0.799	-2.420

When considered the volume of life and non-life insurance premiums, we observed the presence of a deterministic trend in both series. LIPR and NIPR represent the ratio of the premium volume to GDP, hence we can suspect the presence of a deterministic trend even in these series. Figure 2 displays the LIPR and NIPR series and their trends respectively. Considering LIPR, there is a clear upward trend up to the middle of the series, which is no longer present afterwards, while NIPR series shows the presence of a trend approximately in the middle of the series, which is smoothed out at the end of the series. Thus, we conclude that both series have a presence of a deterministic trend and it will be included in further estimations.

Figure 2: Trend of variables

Trend of LIPR *Trend of NIPR*

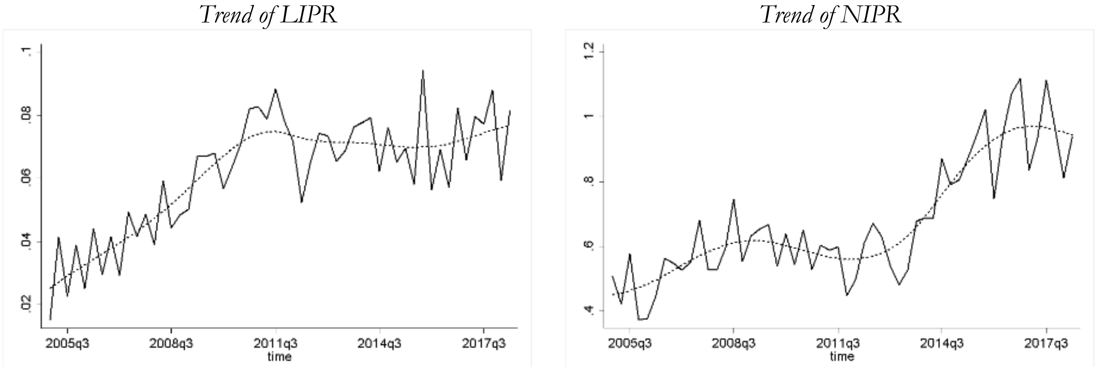


Table 8 represents the results of the Johansen cointegration test, including Growth LIPR and NIPR and a deterministic trend, using 4 lags. The results based either on Trace Statistic or the Maximum – Eigen Statistic show there is no cointegration relation between the variables. Recalling the result of the previous test (between Growth, LLI and LNI), in this case, the rejection of the hypothesis is stronger. Therefore, we conclude that there is no long-term relation between the economic growth and the penetration rate of the insurance market in Albania.

Table 8: Johansen cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	p-value	Max-Eigen Statistic	p-value
None	0.205	21.539	0.925	11.213	0.916
At most 1	0.137	10.326	0.910	7.231	0.884
At most 2	0.061	3.095	0.865	3.095	0.865

Growth and insurance market density

We perform the pre-estimation lag order selection test for Growth, LIDR and NIDR. The results of the test are shown in Table 9 and indicate two lag possibilities. According to SC and HQ criterions the optimal lag length is of 4 lags, while according to LR, FPE and AIC criterions it is of 7 lags. Once again, we base our decision on multiple criteria, and most of the criterions indicate the use of 7 lag length, therefore in this case we use 7 lag length in further estimations. The number of lags included is somehow large, thus we take in consideration the circumstance in which the use of many lags is accompanied with the problems of losing many observations.

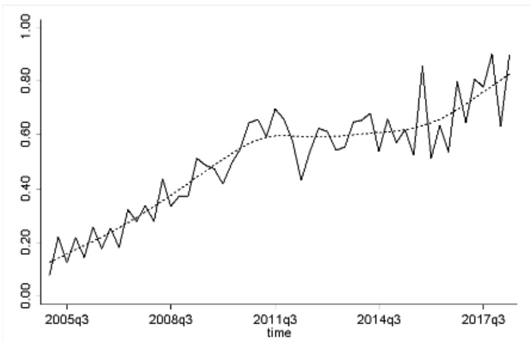
Table 9: Pre-estimation lag order selection statistics

Lag	LR	FPE	AIC	SC	HQ
4	32.275	0.042	5.308	6.844*	5.886*
7	17.459*	0.041*	5.083*	7.681	6.060

Figure 3 displays the trend of LIDR and NIDR series. LIDR shows a clear and continuous upward trend across all the sequence, while NIDR show a minor upward trend at the start, which continues to grow approximately after the middle of the series up to the end. Consequently, this suggests the inclusion of the deterministic trend in further estimations.

Figure 3: Trend of variables

Trend of LIDR



Trend of NIDR

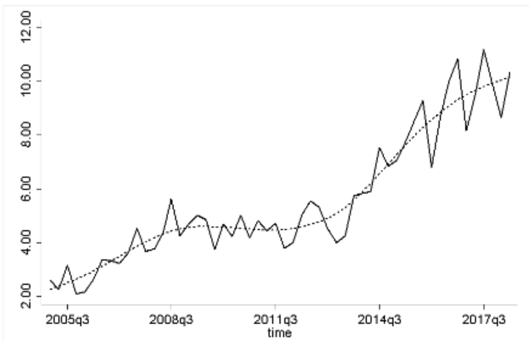


Table 10 represents the results of the Johansen tests for Growth, LIDR and NIDR. According to the trace statistic, at 5% level of significance (almost at 1% level of significance), no more than two cointegrating vectors exist. According to the Maximum – Eigen Statistic, at 5% level of significance no more than one cointegrating vectors exist between the selected variables. In any case, as previously stated, when there is more than one cointegrating vector, the first eigenvector which is based on the largest eigenvalue is regarded as the most useful for further analysis.

Table 10: Johansen cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	p-value	Max-Eigen Statistic	p-value
None	0.555	68.136	0.000*	37.244	0.001*
At most 1	0.334	30.891	0.011*	18.706	0.062
At most 2	0.233	12.185	0.057	12.185	0.057

After concluding the presence of cointegration between variables, we follow the analysis by estimating the VECM including one cointegration equation. Annex 1 represents the estimates of the VECM. Regarding the first equation of the system and considering the error correction term $ECT_{t-1}=1.000Growth_{t-1} +25.893\ LIDR_{t-1} - 1.232\ NIDR_{t-1} + 0.022\ Trend - 13.065$, the results show that the previous year deviation of economic growth from the long run equilibrium is corrected in the current period at a speed of 62.3%. The magnitude of the speed of adjustment mechanism to the long-run equilibrium is relatively high, which implies that the process is highly expected to converge in the long-run. The speed of adjustment is 14.6% for the second equation, and only 0.9% for the third equation. Furthermore, the speed of adjustment coefficient is significant at 5% level only for the first and the third equation.

Focusing on the first equation, the cointegrating vector is given by β'_1= (1.000, 25.893, -1.232, 0.022, -13.065), which gives the following cointegrating relationship:

$$Growth_t = -25.893\ LIDR_t + 1.232\ NIDR_t -0.022\ Trend +13.065$$

The cointegration equation suggest that there exist in the long-run a negative relation between growth and life insurance density, while on contrary a positive relation with non-life insurance. As the non-life insurance activity dominates the insurance market in Albania (it consisted about 93 percent of aggregate insurance market in 2017), it is expected a positive relationship between economic growth and non-life insurance. Regarding the long-run negative relation between growth and non-life insurance, it is in line with the findings of Kjosjevski (2011) for Macedonia. This result may be explained by the fact that the financial system in Albania is a bank-based system, and the saving culture prevails over the insurance culture of the Albanians. On the other hand, when considering the short-run coefficients, LID has a positive effect on growth, while NID has a negative effect on growth. However, most of the LID short-run coefficients, except the first lag and surprisingly the last lag, are not significant, and all of the NID short-run coefficients are not significant.

To check the stability of the model we run a post estimation test, particularly controlling for normality, autocorrelation and heteroscedasticity. The LM test for serial correlation could not reject the null hypothesis of no serial correlation at 7 lags and at 5% level of significance (Annex 2), therefore we conclude the model suffers no autocorrelation problem. We further perform the Jarque-Bera test of normality (Annex 3). At 5% level of significance, we cannot reject the null hypothesis, hence we conclude that the residuals are normally distributed. At last, we perform the heteroscedasticity test (Annex 4), which shows that at 5% level of significance we fail to reject the null hypothesis of constant variance, so the model is homoscedastic. Considering the post estimation tests, we conclude that the model's findings are robust.

5. Conclusions

Insurance market activity may contribute to economic growth, playing both roles, as a financial intermediary and a provider of risk transfer and indemnification, allowing different risks to be managed more efficiently.

In this study, we have been focused on Albanian insurance market to explore the long relationship between growth and the insurance market. Insurance is measured using three different indexes such as gross written premiums, penetration and density rates.

The empirical findings of our study revealed that there is no long run relation between economic growth and insurance market when the second one is measured by the gross written premium volume and the penetration rate. On the other hand, when the insurance market is measured by the density rate, the model confirmed that there exists a long-run negative relation between economic growth and life insurance density, and a positive relation between economic growth and non-life insurance.

The findings are in line with a part of the studies cited in literature review, which revealed that the life insurance market has a positive impact in high income countries, but not in developing ones and that the economic development is more affected by the insurance activity which dominates the market. As the insurance market is prevailed by the non-life insurance market, it is expected that the last one drives the positive result.

Due to the low level of insurance culture and the underdevelopment of life-insurance companies in respect to other financial intermediaries such as banks and investment funds, the Albanian citizens have no interest in directing their savings and investments towards the insurance companies. They still direct their savings towards traditional alternatives, like bank deposits.

The above findings may be of a high importance for the government and the policymakers, because the Albanian financial legislation should aim to stimulate the insurance market, especially the life insurance activity, with the same attention as the banking sector.

Furthermore, the findings of this study would help the experts to address some important aspects that could be considered in operating in the field of insurance market, and the government to adopt some public measures to consolidate and strengthen the insurance market in Albania. The findings of this study may be used in the future to analyse the relationship between economic development and the insurance market in the context of a regional area.

Appendix

Annex 1: VECM estimates

Variables	**(1)** **$\Delta Growth_t$**	**(2)** **ΔLID_t**	**(3)** **ΔNID_t**
ECT_{t-1}	-0.623** (0.172)	-0.009 (0.007)	-0.146** (0.052)
$\Delta Growth_{t-1}$	0.357 (0.195)	0.012 (0.008)	0.190* (0.059)
$\Delta Growth_{t-2}$	-0.022 (0.200)	0.016 (0.008)	0.139* (0.060)
$\Delta Growth_{t-3}$	0.430* (0.185)	0.010 (0.008)	0.235** (0.056)
$\Delta Growth_{t-4}$	-0.124 (0.195)	0.016 (0.008)	0.049 (0.059)
$\Delta Growth_{t-5}$	-0.001 (0.168)	0.007 (0.007)	0.153** (0.051)
$\Delta Growth_{t-6}$	0.310 (0.172)	0.007 (0.007)	0.041 (0.052)
ΔLID_{t-1}	18.665** (6.114)	-0.359 (0.254)	-1.776 (1.843)
ΔLID_{t-2}	0.629 (6.653)	-0.283 (0.276)	-3.208 (2.006)
ΔLID_{t-3}	12.889 (6.706)	-0.576 (0.278)	0.191 (2.022)
ΔLID_{t-4}	10.750 (6.558)	0.124 (0.272)	-0.612 (1.977)
ΔLID_{t-5}	7.487 (6.474)	-0.188 (0.269)	1.771 (1.952)
ΔLID_{t-6}	15.327** (5.391)	-0.079 (0.224)	1.144 (1.625)
ΔNID_{t-1}	-1.008 (0.651)	-0.028 (0.027)	-0.772** (0.196)
ΔNID_{t-2}	-0.179 (0.690)	-0.042 (0.029)	-0.707** (0.208)
ΔNID_{t-3}	-0.940 (0.779)	-0.050 (0.032)	-0.842** (0.235)
ΔNID_{t-4}	-0.984 (0.704)	-0.040 (0.029)	-0.148 (0.212)
ΔNID_{t-5}	-0.881 (0.591)	-0.031 (0.025)	-0.360 (0.178)
ΔNID_{t-6}	-0.928 (0.540)	-0.022 (0.022)	-0.471** (0.163)
C	-0.020 (0.669)	0.069** (0.028)	0.774** (0.202)
Observations	47	47	47
R-squared	0.747	0.742	0.788

*** p<0.01, * p<0.05,*

Standard errors are shown in parenthesis

Annex 2: VECLM Test

VEC Residual Serial Correlation LM Tests
Null Hypothesis: no serial correlation at lag order h
Sample: 2005Q12018Q2
Included observations: 47

Lags	LM-Stat	Prob
1	10.46747	0.3140
2	6.285575	0.7110
3	8.478594	0.4867
4	10.11757	0.3411
5	9.923588	0.3567
6	6.705728	0.6677
7	7.158196	0.6207

Probs from chi-square with 9 df.

Annex 3: Normality Test

VEC Residual Normality Tests
Orthogonalization: Cholesky (Lutkepohl)
Null Hypothesis: residuals are multivariate normal
Sample: 2005Q12018Q2
Included observations: 47

Component	Skewness	Chi-sq	df	Prob.
1	-0.695319	3.787166	1	0.0516
2	0.319298	0.798616	1	0.3715
3	0.238627	0.446051	1	0.5042
Joint		5.031832	3	0.1695

Component	Kurtosis	Chi-sq	df	Prob.
1	3.769842	1.160620	1	0.2813
2	3.342544	0.229784	1	0.6317
3	3.349819	0.239647	1	0.6245
Joint		1.630051	3	0.6526

Component	Jarque-Bera	df	Prob.
1	4.947786	2	0.0843
2	1.028400	2	0.5980
3	0.685698	2	0.7097
Joint	6.661884	6	0.3533

Annex 4: Heteroscedasticity test

VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)
Date: 01/06/19 Time: 17:00
Sample: 2005Q12018Q2
Included observations: 47

Joint test:

Chi-sq	df	Prob.
238.9187	228	0.2965

Individual components:

Dependent	R-squared	F(38,8)	Prob.	Chi-sq(38)	Prob.
res1*res1	0.789794	0.790998	0.7093	37.12032	0.5100
res2*res2	0.820049	0.959381	0.5774	38.54229	0.4450
res3*res3	0.812650	0.913178	0.6122	38.19453	0.4606
res2*res1	0.810599	0.901011	0.6215	38.09815	0.4650
res3*res1	0.826011	0.999475	0.5484	38.82254	0.4325
res3*res2	0.892311	1.744412	0.2069	41.93859	0.3040

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